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(Reaffirmed 2002)

Indian Standard

BASIC TESTING PROCEDURES AND MEASURING METHODS FOR ELECTROTECHNICAL COMPONENTS FOR ELECTRONIC EQUIPMENT

PART 2 GENERAL EXAMINATION, ELECTRICAL CONTINUITY AND CONTACT RESISTANCE TESTS, INSULATION TESTS AND VOLTAGE STRESS TESTS

Section 1 General Examination

1. Scope — This standard (Part 2/Sec 1) covers methods of general examination, namely, visual examination and examination of dimensions and mass of electromechanical components.

2. Test 1a; Visual Examination

2.1 *Object* — The object of this test is to detail standard methods for the visual examination of electromechanical components.

2.2 *General* — The visual examination checks identification, appearance, workmanship and finish of an item against the relevant specification. Optical aids, specified in **2.4** should be used when specified by the detail specification.

The visual examination is to a certain extent a subjective method. Care shall be taken to come to a fair judgement. Defects and deviations from a given standard or changes due to stresses shall be carefully differentiated according to their importance or significance.

2.3 *Features to be Examined* — The following features shall be examined:

a) Workmanship and finish;

b) Marking;

c) Materials;

d) Surface finish, for example:
   1) Traces of corrosion;
   2) Colour (comparison with applicable colour standards or samples);
   3) Degree of lustre (comparison with applicable standard, for example, Boll's scale or sample);
   4) Roughness, grooves, waves, scratches, furrows, holes, pores, depressions, crests, scales, cracks, burrs, flash, etc;
   5) Foreign material in and on the surface.

e) Internal conditions of translucent materials (for example, cavities, gaseous inclusions and flow lines, including inclusions of foreign matter);

f) Condition and location of a lubricant (as far as can be visually ascertained); and

g) Loosened and detached parts (specially after stress).

2.4 *Methods of Visual Examination* — The visual examination shall be carried out by one of the following methods:

a) With the naked eye (normal strength of vision, normal colour perception, at the most favourable viewing distance and with suitable illumination), or

b) With magnifiers, if specified.

For the purpose of this standard, special methods, for example, using polarized light (for observing internal tensions in materials) or other indicators (for observing internal material cracks or pores) are not permitted unless explicitly required by the detail specification.

Electromechanical Components for Electronic Equipment Sectional Committee, LTDC 7 [Ref : Doc : LTDC 7 (1221)]

Adopted 25 August 1988

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2.5 *Details to be Specified*

a) Details to be examined;
b) Features to be checked;
c) Deficiency criteria;
d) Power of magnifier, if specified; and
e) Any deviation from the standard test method.

3. Test 1b : Examination of Dimensions and Mass

3.1 *Object* — The object of this test is to detail a standard method to ckeck the dimensions and mass of electromechanical components.

3.2 *General* — The dimensional examination and checking of mass are measurements made on actual parts with the aid of suitable measuring tools and measuring equipment against the relevant specification.

3.3 *Features to be Checked*

3.3.1 *Outline dimensions* — Dimensions shall be checked and shall comply with the outline drawings of the detail specification.

3.3.2 *Mass* — The mass shall be checked and shall comply with the detail specification.

3.3.3 *Clearance and creepage* — Clearance and creepage distance shall be checked when specified by the detail specification. The distances shall be in accordance with the guide in the appropriate general requirement documents.

3.3.4 *Detailed dimensions* — When required by the detail specification, detailed dimensions of the components supplied shall be checked and shall comply with the relevant drawings.

3.3.5 *Gauging procedure* — Where gauging procedures are specified by the detail specification, the relevant specimens shall be accepted or rejected by the gauges, as appropriate.

3.3.6 *Special measurements* — Special measurements, such as, measurements of thickness of protection and measurements of surface roughness or irregularities, are not covered by this specification.

3.4 *Measuring Methods* — The examination of dimensions and checking of mass should be carried out with appropriate measuring equipment, for example:

a) with a vernier gauge, a micrometer and a dial gauge;
b) with gauges;
c) with a measuring projector with a suitable linear magnification;
d) with a measuring microscope; and
e) with a balance.

3.5 *Details to be Specified* — When this test is required by the detail specification, the following details shall be specified:

a) Features to be checked;
b) Gauging details, if applicable;
c) Type and power of measuring equipment;
d) Deficiency criteria; and
e) Any deviation from the standard test method.

EXPLANATORY NOTE

This standard (Part 2/Sec 1) is based, without any technical change, on IEC Publication 512-2 (1985) 'Electromechanical components for electronic equipment; Basic testing procedures and measuring methods : Part 2 General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress test', issued by the International Electrotechnical Commission (IEC).

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